In the Claims:

**1.** (original) A method for determining the distance between two transmitting and receiving stations (1, 2), characterized in that

in each transmitting and receiving station (1, 2) a transmission signal (S1, S2) is generated and is transmitted as a series of microwave pulses having a predefined pulse repetition frequency (fp1, fp2) to the respective other transmitting and receiving station (2, 1) and is received thereby in the form of a received signal (E2, E1), said pulse repetition frequencies (fp1, fp2) of the transmission signals (S1, S2) varying according to a predefined differential frequency value (fd),

in each transmitting and receiving station (1, 2) the coincidence of pulses of the transmission signal (S1, S2) sent by the respective transmitting and receiving station (1, 2) and the received signal (E1, E2) is detected as a coincidence event,

for each transmitting and receiving station (1, 2) two numbers of pulses (m(i), n(i), p(j), q(j)) allocated to the respective transmitting and receiving station (1, 2) are determined, which as a transmission pulse number (m(i), q(j)) and as a received pulse number (n(i), p(j)) represent the number of the pulses transmitted and received by the respective transmitting and receiving station (1, 2) at the point in time of a coincidence event,

the distance between the transmitting and receiving stations (1, 2) is calculated from the numbers of pulses (m(i), n(i), p(j), q(j)).

**2.** (original) A method according to claim 1, characterized in that for each transmitting and receiving station (1, 2) the time interval (a+b, b-a) between the first pulse transmitted from the respective transmitting and receiving station (1, 2) and the first pulse received by the same transmitting and receiving station (1, 2) is determined from the numbers of pulses (m(i), n(i), p(j), q(j)) determined for the respective transmitting and receiving station (1, 2) and in that the distance between the transmitting and receiving stations (1, 2) is calculated by summation of the determined time intervals (a+b, b-a).

Claims **3 to 14** (canceled).

**15.** (new) A method according to claim 1, characterized in that a range measured value (x) is calculated as a measure of the distance between the transmitting and receiving stations (1, 2) as per the equation

$$x=((m(i)-p(j))\cdot g-((n(i)-q(j))\cdot h,$$

wherein

g and h represent the periods (Tp1, Tp2), scaled to a reference time (T0), of the transmission signal (S1, S2) transmitted from the one or the other transmitting and receiving station (1, 2),

i and j represent counting variables for the number of coincidence events detected at a certain point in time in the one or the other transmitting and receiving station (1, 2),

m(i) and n(i) represent the transmission pulse number and received pulse number allocated to the one transmitting and receiving station (1) at the point in time of the $i^{th}$ coincidence event and

q(j) and p(j) represent the transmission pulse number and received pulse number allocated to the other transmitting and receiving station (2) at the point in time of the $j^{th}$ coincidence event.

**16.** (new) A method according to claim 1, characterized in that the numbers of pulses (p(j), q(j)) determined for the one transmitting and receiving station (2) are transmitted to the other transmitting and receiving station (1) by modulation of the transmission signal (S2) generated in the one transmitting and receiving station (2) and in that the distance between the transmitting and receiving stations (1, 2) is calculated in this transmitting and receiving station (1).

**17.** (new) A method according to claim 16, characterized in that the transmission signal (S2) is modulated by phase modulation.

**18.** (new) A method according to claim 1, characterized in that the numbers of pulses (m(i), n(i), q(j), p(j)) are determined by counting the pulses transmitted and received by the respective transmitting and receiving station (1, 2).

**19.** (new) A method according to claim 1, characterized in that, in each transmitting and receiving station (1, 2) the pulses transmitted are counted to determine the transmission pulse counter states (m, n).

**20.** (new) A method according to claim 19, characterized in that the transmission pulse number (q(j)) and received pulse number (p(j)) are determined for the one transmitting and receiving station (2),

by choosing a pulse (mz), which corresponds to a certain transmission pulse counter state (m), from the transmission signal (S1) generated in the other transmitting and receiving station (1), and by shifting this pulse (mz) in time or suppressing it,

by testing, whether in the one transmitting and receiving station (2) the next coincidence event appears at an expected point in time, and

by allocating as a transmission pulse number (q(3)) the transmission pulse counter state (q) to the one transmitting and receiving station (2) determined at the expected point in time in it and as a received pulse number (p(3)) the transmission a pulse counter state (m) of the

chosen pulse (mZ), if at the expected point in time there is no coincidence event.

**21.** (new) A method according to claim 20, characterized in that the method steps in the case of a coincidence event appearing at the point in time to be expected are repeated with new chosen pulses until a coincidence event fails to appear at an expected point in time.

**22.** (new) A method according to claim 20, characterized in that the transmission pulse numbers (n(i), p(j)) are similarly determined for both transmitting and receiving stations (1, 2).

**23.** (new) A method according to claim 1, characterized in that the differential frequency value (fd) is substantially smaller than the pulse repetition frequencies (fp1, fp2) of the transmission signals (S1, S2).

**24.** (new) A method according to claim 1, characterized in that between the transmitting and receiving stations (1, 2) data are transferred by phase modulation of the transmission signals (S1, S2).

**25.** (new) A method according to claim 1, characterized in that in the transmitting and receiving stations (1, 2) the transmission signal (S1, S2) generated in the respective transmitting and receiving station (1, 2) is converted with

the received signal (E1, E2) received by this station by mixing into an intermediate frequency signal (Z1, Z2), and by converting said intermediate frequency signal (Z1, Z2) by filtering and envelope demodulation into a pulsed evaluation signal (D1, D2) and by determining the position in time of the pulses of the evaluation signal (D1, D2) as points in time (t11, t12, t21, t22), at which a coincidence event appears.

**26.** (new) Use of the method according to claim 1, in a keyless locking system for motor vehicles for determining the distance between a transmitting and receiving station provided in the motor vehicle and a further transmitting and receiving station provided in a key module.

**[REMARKS FOLLOW ON NEXT PAGE]**